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NEW SPECIES OF HYDROIDS, MOSTLY FROM THE ATLANTIC OCEAN, IN THE UNITED STATES NATIONAL MUSEUM

By C. McLean Fraser

A paper that might be called a progress report, including the description of new species from the first portion of a large United States National Museum collection of hydroids, mostly from the North Atlantic, was published in 1940.[1] The examination of the remainder of this collection has been completed, and the present paper serves to report further on the new species in the collection. The whole of the material has yielded more than 1,200 distribution records for 173 species.

Although most of the material was obtained from the North Atlantic, it happens that out of the 15 species here considered only 10 were obtained in the Atlantic. The other five came from the west coast of America, from Bering Sea to Panama. Two of the most interesting species in the collection were together in the same vial from Thistle Ledge, Stephens Pass, not far from Juneau, Alaska. For one of these species it appears to be necessary to introduce not only a new genus but also a new family (see p. 78). The other species, *Lampra uvularis*, belongs to a genus not previously reported from the Pacific coast of North America. One from Bering Sea, one from near the Golden Gate, Calif., and one from near Panama make up the other three species.

[1] Fraser, C. McLean, Seven new species and one new genus of hydroids, mostly from the Atlantic Ocean. Proc. U. S. Nat. Mus., vol. 88, pp. 575–580, 1940.

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Of the 15 species considered 14 are described as new, and for the fifteenth the gonosome is described and figured for the first time. As indicated, one new genus and one new family are described.

The whole collection, therefore, has provided one new family, two new genera, 21 new species, and the gonosome of two species, of which the trophosome had been previously described.

I must again express my appreciation of the courtesy shown by the United States National Museum in providing the opportunity to examine this material, and my appreciation of the contribution that Miss Ursula Dale has made in drawing the figures used in illustration.

SYMPLECTANEIDAE, new family

Trophosome.—Zooids without chitinous perisarc, with capitate tentacles, arranged in series over the surface of the body of the hydranth, each series of three or more fused throughout much of their length to form a bractlike structure.

Gonosome.—Gonophores producing sporosacs borne on the body of the hydranth.

SYMPLECTANEA, new genus

Trophosome.—Zooids solitary, without chitinous perisarc; the capitate tentacles in series, graded in length, the longest tentacle medially placed in the series and the others growing shorter as they appear farther from the median.

Gonosome.—Gonophores in the form of sporosacs in the axil of a series of tentacles.

SYMPLECTANEA BRACTEATA, new species

PLATE 13, FIGURE 1

Trophosome.—Solitary zooids grow from a broad base, with stubby processes projecting from the central portion; largest specimens 33 mm. in length; hydrocaulus 1.6 mm. in diameter, hydranth 2.0 to 4.0 mm., the hydranth making up one-third of the length. No chitinous covering in any part and no annulations. The hydranth is provided with numerous tentacles in series, scattered over the whole surface; the series consists of 3, 5, or 7 tentacles in a row, fused into one bractlike structure; the median tentacle may be 1 mm. long, the next two, one on each side, much the same in length, which is less than that of the median; there is a further recession for the next pair, and the next, if these are all present. Fusion appears for the greater part of the length of the lesser tentacle of each pair in succession, always leaving the capitate portion free. In the younger hydranth the bract makes a

sharp angle with the body, but when the gonophore develops the bract is gradually forced outward distally until it is nearly at right angles to the body.

Gonosome.—The gonophores develop to form sporosacs in the angle between the tentacular bract and the body of the hydranth; they are almost spherical, with very short pedicels; ova relatively large and not numerous.

Type.—U.S.N.M. No. 43450. Taken by the United States Fisheries steamer *Albatross* at station 4253, Thistle Ledge, Stephens Pass, Alaska, 131 fathoms, July 14, 1903.

Family HYDRACTINIDAE

Genus HYDRACTINIA van Beneden

HYDRACTINIA VALENS, new species

PLATE 13, FIGURE 2

Trophosome.—Colony growing from a thick, basal coenosare, provided with short, smooth spines; nutritive zooids large and lusty, reaching a height of 4.5 mm.; 10 tentacles in rather regular whorls.

Gonosome.—Generative zooids (only female zooids obtained) about one-half of the length and breadth of the mature nutritive zooids; tentacles wholly lacking; sporosacs 3–5, forming a whorl at the base of the proboscis; commonly 6 ova in each sporosac.

Other zooids.—None observed.

Type.—U.S.N.M. No. 43451. Taken by the United States Fisheries steamer *Speedwell* at station 284, latitude 42°10′ N., longitude 70°22′ W., southwest of Stellwagens Bank, near Race Point Light, Cape Cod region, 31 fathoms, August 4, 1879.

Family CORYMORPHIDAE

Genus CORYMORPHA Sars (in part)

CORYMORPHA ADVENTITIA, new species

PLATE 13, FIGURE 3

Trophosome.—Zooids 20 mm., of which the hydranth is approximately one-fourth, with adventitious shoots, the longest 0.25 mm., passing backward from the main hydrocaulus at various angles, to serve as accessory means of attachment; the hydrocaulus has much the same diameter throughout, or this may increase slightly, distally; proximal tentacles 20–24 in one whorl, distal tentacles very numerous in several irregular whorls.

Gonosome.—Gonophores borne on long, unbranched peduncles, attached to the hydranth just distal to the proximal tentacles, each gonophore with a short pedicel; apparently these gonophores develop irregularly, as small and large ones are mixed without any evidence of their appearing in any regular order.

Type.—U.S.N.M. No. 43452. The vial is labeled "U. S. F. C. Str. *Albatross*, Panama, Mar. 12, 1891," but there is no station listed on that day. The last haul on March 11 was made in latitude 7°33′ N., longitude 78°34′20″ W., in 85 fathoms.

Remarks.—The adventitious shoots in these hydroids are so unusual that it might seem advisable to place the species in a new genus, but, although each of the three specimens available for examination had these shoots, it is just possible that they may have developed under unusual conditions, and as all the other features are definitely like *Corymorpha*, it seems better at the present time to place it in this genus.

Family TUBULARIDAE

Genus LAMPRA Bonnevie

LAMPRA UVULARIS, new species

PLATE 14, FIGURE 4

Trophosome.—Zooid 22 mm., of which the hydrocaulus is 15 mm., straight, without annulations; hydranths large, 7 mm. in diameter; proximal tentacles 18–20, long and slender; distal tentacles 40–48, shorter and stiffer in appearance, in four rather indistinctly different whorls.

Gonosome.—Gonophores growing in eight erect, closely arranged clusters, looking like compact bunches of grapes or like the cluster of flowers in the grape hyacinth; each gonophore is spherical, on a short pedicel, and shows no sign of tentacular processes.

Type.—U.S.N.M. No. 43453. Taken by the United States Fisheries steamer *Albatross* at station 4253, Thistle Ledge, Stephens Pass, Alaska, 131 fathoms, July 14, 1903.

Remarks.—This appears to be the first record of a species of this genus from the northeastern Pacific. This is not the place to discuss the systematic position of *Lampra*, but it may be stated that it cannot be placed in the Tubularidae (as Bonnevie has placed it[1]) as this family has been defined in all my previous papers.

[1] Bonnevie, Kristine, Zur Systematik der Hydroiden. Zeitschr. Wiss. Zool., vol. 63, p. 477, 1898.

Genus TUBULARIA Linnaeus (in part)

TUBULARIA CRASSA, new species

PLATE 14, FIGURE 5

Trophosome.—Individual zooids only were obtained: there is nothing to indicate whether they grow in colonies or not; the pedicels appear to be complete, but they are but little more than 1 cm. in length, which, even in the contracted condition, has a diameter almost equal to the length of the pedicel. There are no annulations, but there is a definite ridge at the base of the proximal tentacles; proximal tentacles long and numerous, 32–36; distal tentacles slender, much more numerous.

Gonosome.—Gonophores grow in rather long, erect racemes when well developed; these racemes are densely crowded so that the body of the hydranth is almost entirely hidden; there are no tentacular processes on the gonophores.

Type.—U.S.N.M. No. 22746. Taken by the United States Fisheries steamer *Fish Hawk* at station 988, latitude 40°49′30″ N., longitude 70°47′ W., off Marthas Vineyard, 30 fathoms, September 7, 1881.

Family CAMPANULARIDAE

Genus CAMPANULARIA Lamarck

? CAMPANULARIA FASCICULATA, new species

PLATE 15, FIGURE 6.

Trophosome.—Colony 2 cm. in height, with the base of the main stem and some of the lower branches fascicled. The simple branches are short; the hydrothecae arising from the fascicled stem have relatively long pedicels, annulated at each end; those from the simple portion of the stem and from the branches with shorter pedicels, commonly annulated throughout. Hydrothecae large, 0.5–0.6 mm. in length, broadly campanulate; margin with 16 low, rounded teeth; lines run down the wall of the hydrotheca from the depressions between the teeth.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43454. Taken by the United States Fisheries steamer *Speedwell* at station 984, latitude 41°31′ N., longitude 69°28′ W. off Chatham, Cape Cod, 33 fathoms, August 30, 1881.

Genus OBELIA Peron and Lesueur

? OBELIA RACEMOSA, new species

PLATE 15, FIGURE 7.

Trophosome.—Colony large, with a main axis 25 cm. and a few large branches almost as large as the main axis; from these small branches and branchlets are given off that distally are clustered in rather stiff racemes. The main stem and larger branches are strongly fascicled and even the secondary branches may be so in the proximal portion; the primary branches and the larger secondary branches are annulated only above the nodes, but the distal branchlets and the pedicels are extensively annulated; the longer ones are annulated proximally and distally, with a short, smooth portion between, of greater diameter, so that the branchlet or pedicel seems to bulge definitely in this portion; the shorter pedicels are annulated throughout. The hydrothecae, appearing in close clusters, are broadly campanulate, at least as broad as deep; margin entire. The larger branches and the main stem are dark brown, the branchlets and pedicels much lighter.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 4883. Western Bank, off Cape Breton Island, 50–65 fathoms, June 7, 1880.

Remarks.—This species bears some resemblance to *Obelia plicata* Hincks, but it is a larger, coarser species, the ultimate branches are more rigid, the hydrothecae are clustered, and the hydrotheca is more broadly campanulate.

Family CAMPANULINIDAE

Genus EGMUNDELLA Stechow

EGMUNDELLA GRANDIS, new species

PLATE 16, FIGURE 8.

Trophosome.—Zooids growing singly from an irregularly reticulate stolon to a height of 3 mm.; pedicel straight, rigid, smooth except for two or three annulations at each end; hydrotheca of the usual turbinate type, 0.7–0.8 mm. in height; operculum of 12 segments. Nematophores very small for this genus, spherical, with a short pedicel, sparingly scattered over the stolon, and occasionally occurring on the pedicels.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43455. Taken by the United States Fisheries steamer *Fish Hawk* at station 897, latitude 37°25′ N., longitude 74°18′ W., off the mouth of Chesapeake Bay, 157½ fathoms, November 16, 1880.

Genus LOVENELLA Allman

LOVENELLA GRANDIS Nutting

PLATE 16, FIGURE 9.

Lovenella grandis NUTTING, U. S. Fish Comm. Bull. for 1899, pp. 325–386, figs. 1–105, 1901.

Trophosome.—Stems simple, rather rigid, unbranched, up to 5 cm. in length, divided into regular, long internodes by single nodes. Hydrothecae arise on short pedicels, with a double annulation from a process a short distance from the distal end of the internode, regularly alternate; hydrothecae very large, turbinate; margin with 10–12 sinuations from which arise the segments of the operculum.

Gonosome.—(Not previously described.) Gonangium long, 1.5–1.6 mm., but rather slender, arises from the axil of the pedicel, the basal portion gradually increasing in diameter, but the distal half practically tubular; pedicel short, with one annulation. Medusa buds were developing on the blastostyle, but they were not far enough advanced to show all the characteristics.

Type.—U.S.N.M. No. 43460. Taken by the United States Fisheries steamer *Fish Hawk* at station 830, near the mouth of the Sakonnet River, R. I., 10½ fathoms, August 27, 1880.

Remarks.—Nutting described this species from a specimen dredged from Newport Harbor, off Castle Hill, a location very near the present one. As far as I am aware, it has not been reported since until now. Nutting's specimen had no gonosome.

Family HALECIDAE

Genus HALECIUM Oken

HALECIUM DUBIUM, new species

PLATE 16, FIGURE 10*a*; PLATE 17, FIGURE 10*b*

Trophosome.—Colony slightly bushy, reaching a height of 3 cm.; proximal portion fascicled to a limited extent. Nodes not very strongly marked; internodes long, turning alternately to one side and to the other, making a zigzag main stem. The hydrophore, with relatively long pedicel, is given off near the distal end of the internode; this pedicel makes much the same angle with the vertical as the internode of the stem does. The hydrophore may give rise to one or more other hydrophores as duplications, the pedicels of these varying much in length; the margin of the hydrophore is slightly flaring. The branches arise in the same way as the hydrophores, so it would appear at first glance that the branching is dichotomous, but the branch is not like the main stem; the proximal portion is like a hydrophore with

an elongated pedicel and it may be duplicated in series; then from the distal end, or near it, of the main pedicel, an internode is given off that looks like an internode of the main stem, and from this the branch continues in the same way that the stem does.

Gonosome.—Male gonangia arise from the base of the hydrophore pedicels, just beyond where they leave the internodes; they are broadly obovate in the one direction and almost flat in the other; there is a short but distinct pedicel present; at the distal end the gonangium has a small, but distinct, semicircular notch.

Type.—U.S.N.M. No. 22922. Taken by the United States Fisheries steamer *Albatross* at station 2572, latitude 40°29′ N., longitude 66°04′ W., off Cape Sable, 1,769 fathoms, September 2, 1885.

Remarks.—It is with some misgivings that I describe this as a new species, since there is so much resemblance to *H. telescopicum* Allman, as described and figured by Allman [2] and by Jäderholm,[3] and yet the specimen from which this species is described has not the characteristic that these authors, and Pictet and Bedot [4] as well, consider definitely distinctive, i. e., the number of the reduplications of the hydrophore, to form a series with many more units than are exhibited in any other species. One might surmise that this excessive reduplication was due to some seasonal or environmental condition, were it not that the same type of structure appeared in such distant locations. The distribution itself is indeed remarkable. Allman described it originally from off Port Jackson, NSW., in 30–35 fathoms. Then Pictet and Bedot reported it from the Gulf of Gascogny in 155–180 meters, and later Jäderholm reported it from the Bering Sea in 131 meters.

Apart from the matter of reduplication, the only other character that is noticeably different is the gonangium, or rather the semicircular notch at the distal end of this, and this is quite a minor difference. The female has not been reported in any instance.

HALECIUM TENSUM, new species

PLATE 17, FIGURE 11

Trophosome.—Colony rather rigid, with a main axis (5 cm.) and a few irregularly arranged branches, the proximal being almost as long as the main axis and the others becoming shorter as they get farther from the base; proximal portion of the main stem and of some of the branches, fascicled; there is little indication of nodes on stems or branches. Each portion of a stem or branch that corresponds to an

[2] Allman, G. J., Report on the Hydroida. *Challenger* Expedition, vol. 23, pt. 70, p. 10, 1888.

[3] Jäderholm, E., Der Hydroidenfauna des Beeringsmeeres. Archiv för Zool., vol. 4, No. 8, p. 4, 1907.

[4] Pictet, C., and Bedot, M., Hydraires provenant des Campagnes de L'Hirondelle (1886–1888), p. 7, 1900.

internode in the regular type is much elongated, tubular, and slightly curved outward distally to end in a hydrophore; then from this pedicel of the hydrophore, a short distance from the distal end, the pedicel for another hydrophore is given off. These in succession form a series, alternately curving to one side and the other and thus maintaining a linear stem or branch. From within each main hydrophore there is usually another hydrophore developed with a much shorter and somewhat slenderer pedicel. In some cases this hydrophore is duplicated. The rim of the hydrophore flares but slightly.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 22926. Taken by the United States Fisheries steamer *Fish Hawk* at station 940, latitude 39°54′ N., longitude 69°51′30″ W., off Marthas Vineyard, 134 fathoms, August 4, 1881.

Remarks.—This *Halecium* has somewhat the same general appearance as *H. kükenthali* Marktanner-Turneretscher, but as a colony it is more rigid and less branched; the internodes, or rather hydrophore pedicels, are relatively much longer, and, most noticeably, they lack the annulations that are so conspicuous in *H. kükenthali.*

Family LAFOEIDAE

Genus LICTORELLA Allman

LICTORELLA CRASSITHECA, new species

PLATE 18, FIGURE 12

Trophosome.—Main stem and the proximal portions of some of the branches fascicled, branching inclined to be pinnate but irregular; occasionally secondary branches appear. There are no noticeable nodes in the ultimate branches, but the hydrothecae are given off in regular alternation. There is a distinct shoulder at the origin of each hydrotheca on which the pedicel of the hydrotheca seems to be somewhat displaced upward or outward; the pedicel is distinct, with one distinct annulation. The hydrotheca widens quickly at the base and the remainder is nearly cylindrical, except that it shows a slight campanulate tendency near its margin, which is entire. The width is much greater relative to the length than in other species. The diaphragm is distinct but does not reach in far from the wall of the hydrotheca. The nematocysts are scarce; none was observed on the branches and few on the fascicled stem.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43456, Gulf of Maine, 17 fathoms. Also taken at *Albatross* station 2430, latitude 42°58′30″ N., longitude 50°50′ W., southeast of Sable Island, 179 fathoms, June 23, 1885.

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Family PLUMULARIDAE

Genus AGLAOPHENIA Lamoroux (modified)

AGLAOPHENIA INCONSTANS, new species

PLATE 18, FIGURE 13

Trophosome.—Colonies varying in appearance; one, 17.5 cm. long, has no branches, and all the hydrocladia have disappeared from the stem except for about 2.5 cm. at the distal end, while at the other extreme a distal fragment of the main stem, 6 cm. long, has six branches, each replacing a hydrocladium and each regularly bearing hydrocladia; the longest branch is 2.0 cm. Stems, with the exception of the proximal portion, and branches are divided into regular, rather short internodes by definite nodes, each internode bearing a hydrocladial process near the distal end; these processes alternate from side to side but are not nearly in the same plane; two in succession may form an angle as low as 60°. Hydrocladia short for the size of the colony, as short as in some of the minute species of this genus, divided into regular internodes by definite nodes; each hydrotheca occupies almost all the internode, so that there is little space between two hydrothecae in succession; distinctly deeper than broad; margin with nine irregular and irregularly placed teeth; the median tooth is slender, sharp-pointed, and strongly retrorse; each of the first lateral pair is also slender and acute but points outward; between the first and the second there is a wide and deep sinus; the second is lower and blunter than the first; the sinus between the second and third is shallower, and the third tooth is blunter than the second; the next sinus is even less marked, for the fourth lateral tooth is rather insignificant in size and in some cases can scarcely be observed. The intrathecal ridge is prominent, and there is a second one indicated at the base of the supracalycine nematophore.

The supracalycine nematophores are large, slightly overtopping the hydrothecal margin; the mesial nematophore is short, not reaching to the margin of the hydrotheca and not projecting outward very noticeably. There are three nematophores on each internode of the stem or branch; one on the hydrocladial process, one at the base of this process, and one in the axil, this being larger than either of the others.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43457. Taken by the United States Fisheries steamer *Albatross* at station 3497, latitude 56°18′ N., longitude 169°38′ W., Bering Sea, 86 fathoms, July 17, 1893.

AGLAOPHENIA TRANSITIONIS, new species

PLATE 18, FIGURE 14

Tropohosome.—Colony with a long, somewhat rigid main axis, 8 cm., a limited number of branches given off from the distal half of the stem; each branch leaves the stem in the same manner as a hydrocladium, but after it has given rise to seven or eight hydrothecae it definitely becomes a branch and gives off hydrocladia similar to those from the main stem. The hydrocladia are relatively short (maximum 4 mm.) and arise alternately from the face of the stem, so that the supporting processes form a zigzag row, but slightly curved; divided into regular short internodes by distinct nodes, so that the hydrothecae are closely placed; the hydrotheca is little longer than broad and is stouter distally than proximally, adnate throughout almost the whole length; margin with 11 teeth; the median tooth is erect or very slightly retrorse, sharp, smaller than the tooth on each side; the tooth next to the median on each side is the longest, the second one is the smallest, and the third, fourth, and fifth are nearly equal; all of them are rather sharply pointed. There is no definite anterior intrathecal ridge; the posterior is strongly marked but does not reach far.

The supracalycine nematophores, which do not nearly reach the margin of the hydrotheca, are strongly curved, so that the opening points backward; mesial nematophore not prominent, projecting from the hydrotheca in the distal third of its anterior surface. Of the three cauline nematophores that on the hydrocladial process and the one below the insertion of this process are tubular; the one near the axil, i. e., distal to the process, is triangular and larger than either of the others.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43458. Taken by the United States Fisheries steamer *Albatross* at station 3150, latitude 37°47′ N., longitude 122°44′10″ W., off Golden Gate, Calif., 21 fathoms.

Genus PLUMULARIA Lamarck (in part)

PLUMULARIA POLYNEMA, new species

PLATE 18, FIGURE 15

Trophosome.—Stem simple, slender (from fragment 83 mm. long), divided into regular internodes with well-marked nodes, each bearing a single hydrocladium on a prominent process near the distal end. All the internodes in the hydrocladium are long, slender, and thecate, except that in some instances an extra nonthecate internode appears, making an intermediate internode, with two nematophores, and a thecate internode that is much shorter than the others, with but one

prominent median nematophore. The hydrotheca, placed a considerable distance from the distal end but still in the distal half, is nearly equal in depth and breadth. In some instances, a secondary branch or hydrocladium is given off in place of the hydrotheca in an internode of the primary hydrocladium. There are no definite septal ridges in stem or hydrocladia.

There are two supracalycine nematophores, two mesial nematophores on the proximal hydrocladial internode and three on each of the others, two at the axil of the hydrocladium on the cauline internodal process, and three (sometimes only two observed) on each of the cauline internodes.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43459. Taken by the United States Fisheries steamer *Fish Hawk* at station 1092, latitude 39°58′ N., longitude 69°42′ W., off Marthas Vineyard, 202 fathoms, August 11, 1882. Another lot taken at *Fish Hawk* station 1038, latitude 39°58′ N., longitude 70°06′ W., off Marthas Vineyard, 130 fathoms, September 21, 1881.

EXPLANATION OF PLATES

(Unless otherwise specified the magnification is × 20.)

PLATE 13

1. *Symplectanea bracteata*, new genus and species: *a*, Hydranth, showing arrangement of tentacular bracts and gonophores (× 12); *b*, tentacular bract and gonophore.
2. *Hydractinia valens*, new species: *a*, *b*, Nutritive zooids; *c*, *d*, female generative zooids; *e*, spines.
3. *Corymorpha adventitia*, new species: *a*, Zooid, showing adventitious shoots (× 3); *b*, hydranth, showing tentacle and gonophore arrangement (× 12).

PLATE 14

4. *Lampra uvularis*, new species: Zooid, showing tentacle and gonophore arrangement.
5. *Tubularia crassa*, new species: *a*, Individual zooid (× 6); *b*, a gonophore cluster.

PLATE 15

6. *?Campanularia fasciculata*, new species: *a*, Portion of fascicled stem with hydrothecae; *b*, portion of simple stem.
7. *?Obelia racemosa*, new species: Portion of colony showing hydrotheca arrangement.

PLATE 16

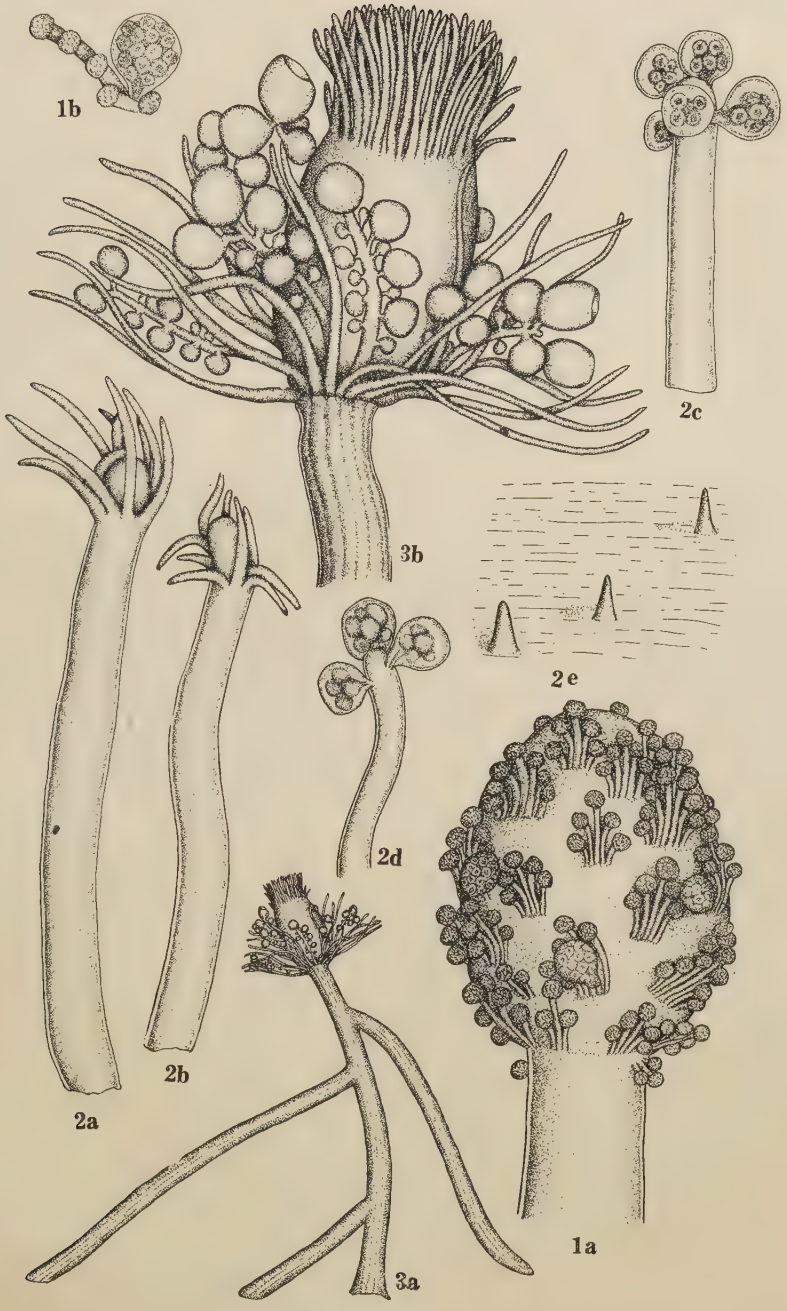
8. *Egmundella grandis*, new species: *a*, *b*, Hydrothecae and nematophores.
9. *Lovenella grandis* Nutting: *a*, Portion of colony with hydrothecae and gonangia; *b*, a single gonophore.
10. *Halecium dubium*, new species: *a*, Portion of colony showing hydrophore arrangement.

PLATE 17

10. *Halecium dubium*, new species: *b*, Portion of colony showing gonophore arrangement.
11. *Halecium tensum*, new species: *a*, Portion of fascicled stem; *b*, *c*, portions of simple stem.

PLATE 18

12. *Lictorella crassitheca*, new species: *a*, Portion of fascicled stem; *b*, portion of simple stem.
13. *Aglaophenia inconstans*, new species: *a*, Portion of hydrocladium showing hydrothecae; *b*, three hydrothecae (× 40).
14. *Aglaophenia transitionis*, new species: *a*, Portion of hydrocladium showing hydrothecae; *b*, three hydrothecae (× 40).
15. *Plumularia polynema*, new spcies: *a*, Portion of colony showing nematophore arrangement; *b*, portion of colony showing branched hydrocladium.



NEW HYDROIDS.

FOR EXPLANATION OF PLATE SEE PAGE 89

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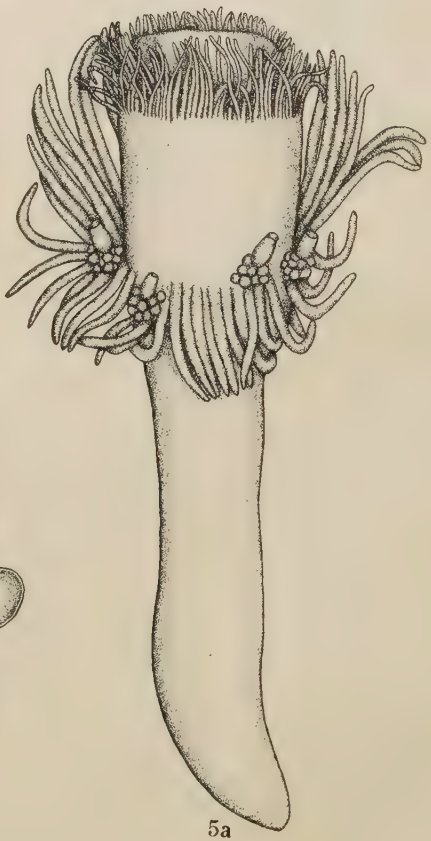

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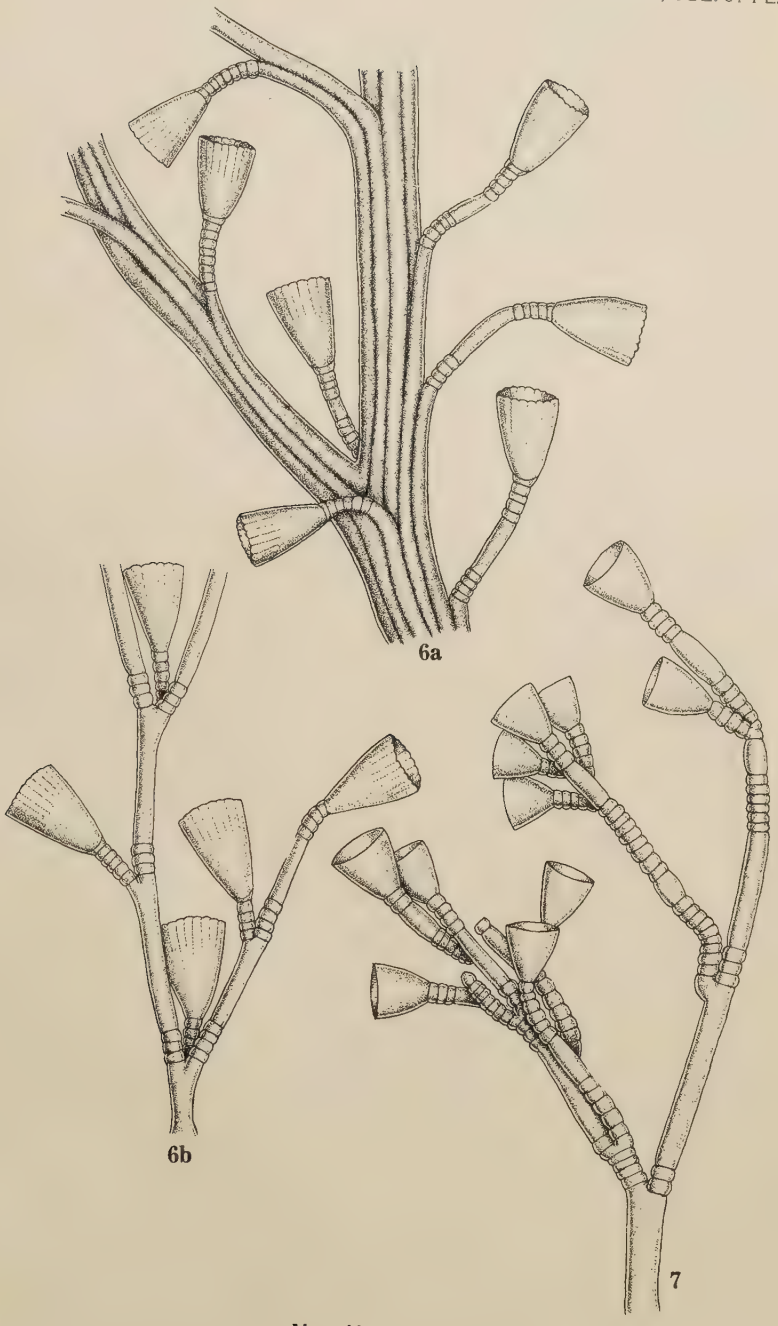
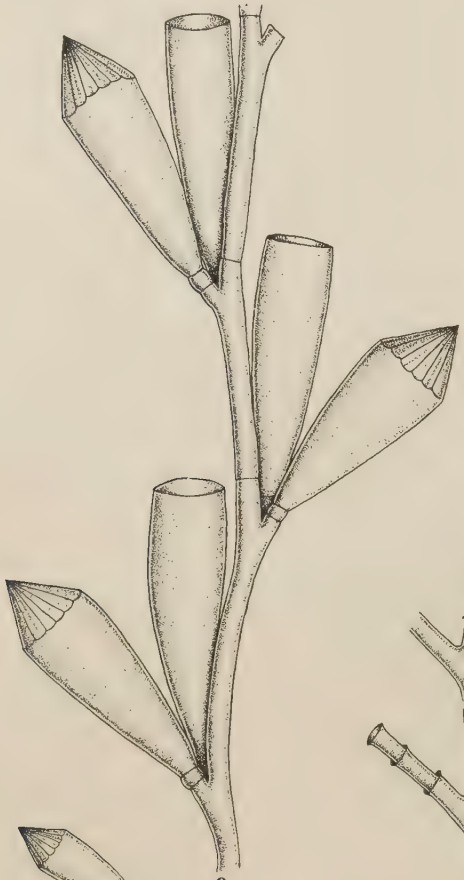
NEW HYDROIDS

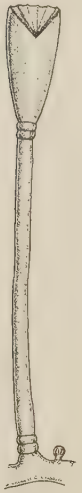
FOR EXPLANATION OF PLATE SEE PAGE 89

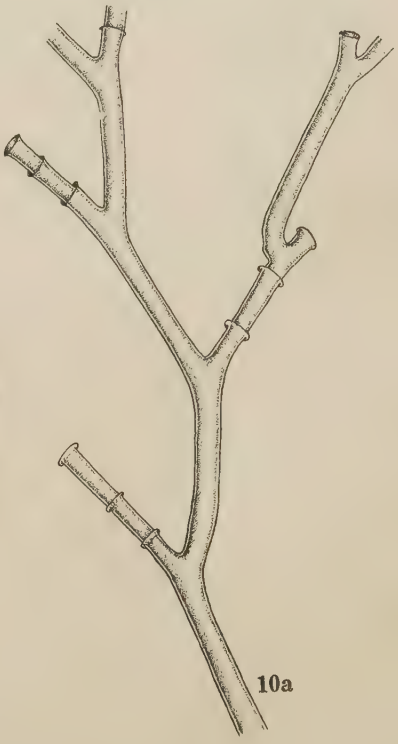


NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89

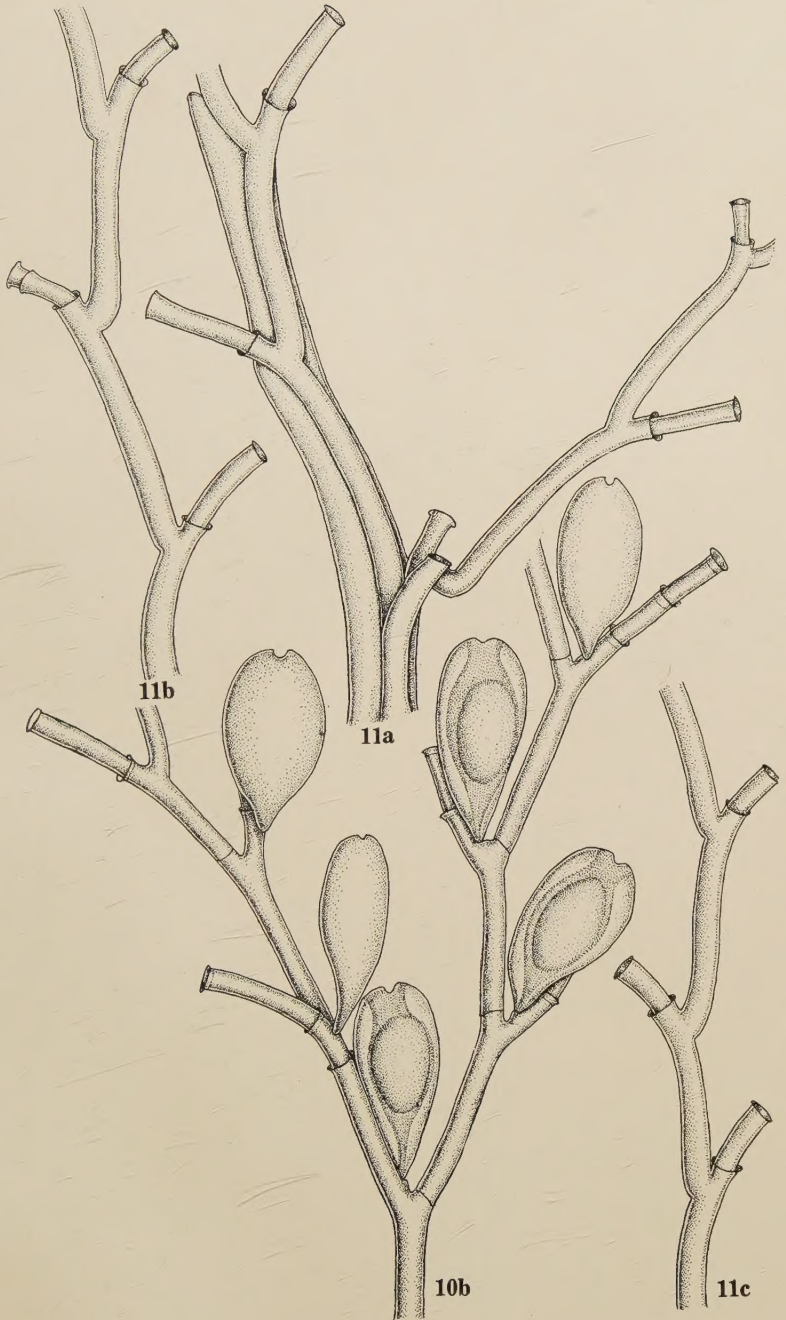






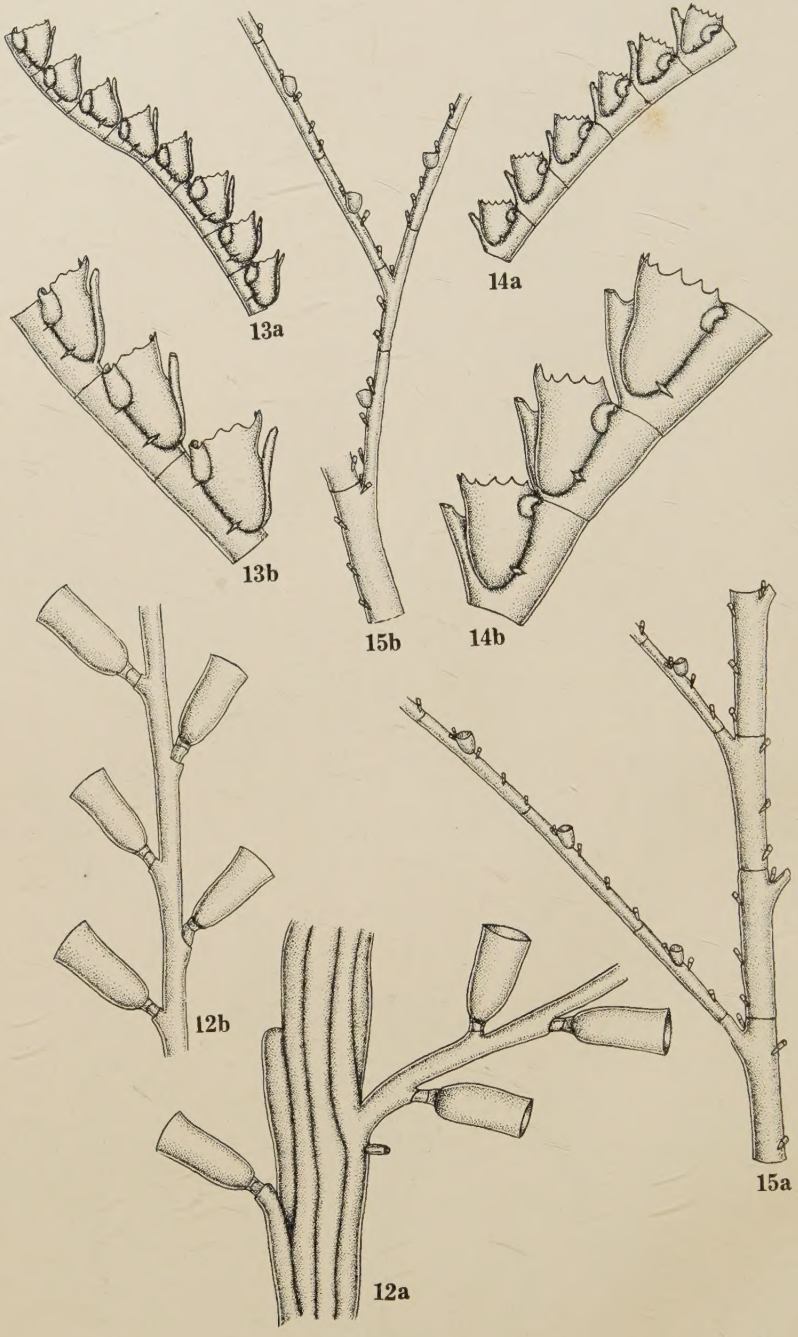
NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89



NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89



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